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ABSTRACT

The social outcomes of two mainstreaming programs were compared for 24 first through third grade handicapped children. Ss were randomly assigned to one of two placements: a traditional resource room or an adaptive educational program. Placement differed in the amount of time students spent in an integrated setting, the instructional practices, and the opportunities for both instructional and social interactions. Observational data on classroom processes were analyzed to document the distinguishing characteristics of the social and academic environments in which the Ss were placed. Differences were then examined in relation to Ss' self repots of competence, friendship patterns, and peer acceptance. Results revealed that social outcomes varied markedly across the two programs. More positive trends were uncovered in the adaptive program where children were placed in the integrated setting on a full time basis, learning assignments were matched to ability levels, itinerant services were provided as much as possible within the classroom, and opportunities to interact with peers and form personal relationships were frequent. Handicapped Ss in the adaptive education program had higher self ratings of competence and received higher peer acceptance ratings than did handicapped Ss in the resource room program. (Author)

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A Comparative Study of the Social Attitudes and Behaviors of Mildly Handicapped Children in Two Mainstreaming Programs

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Abstract

The possible social benefits of mainstreaming are often measured in terms of the improved self-regard and social status of handicapped children. A striking feature of the research on the social outcomes of mainstreaming, however, is the inconclusiveness of findings. One of the major reasons for this inconclusiveness is that mainstreaming, as an independent variable, is often regarded as an unitary phenomenon with little or no attention to its defining characteristics. Only an occasional reference is made to the amount of time handicapped students spend in the mainstreaming setting. However, instructional arrangements, group structures, and participants are likely to vary tremendously across programs making it difficult, if not nearly impossible, to draw any firm conclusions about the social outcomes of mainstreaming.

The present study compares the social outcomes of two mainstreaming programs. Twenty-four first through third grade handicapped children were randomly assigned at the beginning of the academic year to one of two mainstreaming placements: a traditional resource room program or an adaptive educational program. The two placements differed in the amount of time children spent in an integrated setting, the instructional practices, and the opportunities for both instructional and social interactions. Observational data on classroom processes were carefully analyzed to document the distinguishing characteristics of the social and academic environments in which the two groups of children were placed. These differences were then examined in relation to children's self-reports of competence, friendship patterns, and peer acceptance.

The results indicated that social outcomes varied markedly across the two programs. More positive trends were uncovered in the adaptive program where children were placed in the integrated setting on a full time basis, learning assignments were matched to ability levels, itinerant services were provided as much as possible within the classroom, and opportunities to interact with peers and form personal relationships were frequent. Handicapped children in the adaptive education program had higher self-ratings of competence and received higher peer acceptance ratings than did handicapped children in the resource room program. The implications of this study for defining and assessing the social outcomes of mainstreaming in the context of important program variables are discussed.

A COMPARATIVE STUDY OF THE SOCIAL ATTITUDES AND BEHAVIORS OF MILDLY HANDICAPPED CHILDREN IN TWO MAINSTREAMING PROGRAMS

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The possible social benefits of mainstreaming are often measured in terms of the improved self-regard and social status of handicapped children. A striking feature of the research on the social outcomes of mainstreaming, however, is the inconclusiveness of findings. While some studies suggest that mainstreaming leads to more positive attitudes and better acceptance of handicapped children (Ballard, Corman, Gottlieb, & Kaufman, 1977; Chennault, 1967; Johnson & Johnson, 1981; Lilly, 1971; Slavin, Madden, & Leavey, Note 1), several other studies suggest precisely the opposite (Bruinicks, Rynders, & Gross, 1974; Bryan, 1976; Gottlieb, & Budoff, 1973; Iano, Ayers, Heller, McGettigan, & Walker, 1974; Siperstein, Bopp, & Bak, 1978). A similar pattern of inconsistency is found when the issue concerns the improved self-concept of handicapped children mainstreamed into regular classrooms (Gottlieb, 1975; Gottlieb, & Leyser, 1981-a; Semmel, Gottlieb, & Robinson, 1979; Strain & Kerr, 1981). Although there has been considerable interest in the social consequences of mainstreaming, no firm conclusions have yet been reached.

One of the major reasons for the inconclusiveness of this research is that mainstreaming, as an independent variable, is often regarded as an unitary phenomenon. There are, however, numerous definitions of mainstreaming in the literature that vary in specificity and in the types of services provided (Reynolds & Wang, 1981). Yet, in general,

very little attention is given to the important defining characteristics of mainstreaming programs. Only an occasional reference is made to the amount of time handicapped students spend in the regular or mainstreaming setting.

Mainstreaming programs are likely to vary greatly in a number of important dimensions (Guralnick, 1981; Semmel, Gottlieb, & Robinson, 1979; Turnbull & Blacker-Dixon, 1981). First, educational practices and curricular materials providing for the instructional integration of handicapped children are markedly different across mainstreaming programs. Variations can also be found in classroom group structures that provide opportunities for handicapped and nonhandicapped children to work together on tasks and to interact in constructive positive ways (Slavin, Madden, & Leavey, Note 1; Leinhardt, Note 2). In addition, classroom participants are likely to vary in terms of chronological ages, instructional needs, developmental levels, and handicapping conditions. The ratio of nonhandicapped to handicapped children is probably an important factor in determining the degree to which teachers can provide for the special social needs of handicapped children described in this symposium by Bryan and Pearl (Note 3). Finally, there is likely to be a good deal of variability in the skills and willingness of regular classroom teachers and in the resources available to support this function of their role in the mainstreaming setting. The tremendous variability in the implementation of mainstreaming programs makes it difficult, if not nearly impossible, to draw any firm conclusions about the mainstreaming experience (Guralnick, 1981; Meyers, MacMillan, & Yoshida, 1980; Semmel, Gottlieb, & Robinson, 1979). In order to develop a better understanding of the social outcomes of mainstreaming, the important distinguishing features of

these programs need to be more adequately specified in research investigations.

In this study, we examined and compared the social outcomes of two mainstreaming programs: a traditional resource room program and an adaptive educational program. As will be shown, the two programs differed in the amount of time children spent in the integrated setting, in instructional practices, and in the opportunities for instructional and social interactions in the mainstreaming classroom. The objectives of this study were twofold: (a) to identify the distinguishing characteristics of each program, based on analyses of observational data on classroom processes; and (b) to examine children's self-reports of competence, friendship patterns, and peer acceptance, in the context of the identified program variables.

Method

The study was conducted during the 1980-81 school year in the primary grades (first through third) of a public school where both a full-time and shared-time approach were used to mainstream mildly handicapped and gifted students. The school is located in a suburban lower-middle class Pittsburgh community with a population of approximately 12,000. Roughly 11% of the school district's student population is eligible for Title I services.

Description of Students

All of the 126 primary students (grades 1 through 3) enrolled in the school were included in the study. Children were randomly assigned to one of two mainstreaming programs. Table 1 provides a breakdown of the types of students at each grade level for both programs. As shown here, a total of 57 students (40 regular, 12 handicapped, and 5 gifted) were assigned to classrooms where the Adaptive Learning Environments Model (ALEM), an adaptive education program, was implemented. The remaining 68 students (51 regular, 12 handicapped, and 4 gifted) were assigned to non-ALEM classrooms where the district's special education program was implemented to provide basic skills education for handicapped students in a resource room setting.

Insert Table 1 about here

The handicapped students in both sets of classrooms were identified using the criteria established by the State of Pennsylvania. Based on these criteria, students are classified by schools as learning disabled (LD) if they demonstrate average intellectual ability and a severe disparity (50%) between expected and actual functioning in at least one of the basic academic skills areas. Children are classified in the socially and emotionally disturbed (SED) category if, over a long period of time and to a marked degree, they exhibit one or more of four characteristics: an inability to learn that cannot be explained by intellectual, sensory, or health factors; an inability to establish

and/or maintain satisfactory interpersonal relationships with teachers and peers; inappropriate behaviors or feelings; and general pervasive pain or fear associated with personal or school problems. Educable mentally retarded (EMR) students are defined as those who exhibit significantly impaired adaptive behavior in learning, motivation, or social adjustment as the result of below average intellectual functioning (I.Q. scores between 55 and 70). As is indicated in Table 1, the majority of the handicapped children participating in this study were identified as learning disabled (LD).

Description of Mainstreaming Programs

The Adaptive Learning Environments Model. The Adaptive Learning Environments Model (ALEM), developed and field tested at the Learning Research and Development Center of the University of Pittsburgh, has been implemented nationwide over the past 10 years as part of the National Follow Through Program. Recently, with funds from the U. S. Office of Special Education, the program has been implemented as a mainstreaming alternative for exceptional students. One of the assumptions underlying the development of the ALEM is that, through adapting instruction to individual learning needs, regular, handicapped, and gifted students can be educated on a full-time basis in a regular classroom setting where they can equally share resources and learning opportunities. It is also believed that in a mainstreaming setting, where learning experiences are based on a wide continuum of academic and social goals, students will be less likely to develop perceptions of themselves as being "special" (Wang, 1981).

The program has three major curricular components. These include: (a) a prescriptive learning component, designed to teach basic academic skills; (b) an exploratory learning component, designed to foster a student's ability to assume responsibility for structuring and defining their learning tasks; and (c) an instructional-learning management system, designed to provide the management supports required for effective program implementation. Each of these components is briefly described below.

The prescriptive learning component includes a series of individualized learning tasks in both math and reading, which are hierarchically sequenced to insure the acquisition of simple skills necessary in acquiring more complex ones (Wang & Resnick, 1978; Wang, Resnick, & Boozer, 1971). An integral part of the prescriptive learning component is the diagnostic and skills mastery testing program. The testing program provides teachers and students with evaluative feedback that can be used to monitor and reinforce student learning progress. Based on the results of diagnostic tests, teachers are able to place students at curricular levels where they can complete their learning tasks with increasing independence (Wang & Resnick, 1978). Test results are combined with information from other sources (e.g., achievement tests, school records, observations of school personnel, etc.) to develop individualized educational programs (IEP's) for all students, both handicapped and nonhandicapped.

Unlike the prescriptive learning component, the exploratory learning component of the ALEM consists of tasks that are generally selected and designed by students. These tasks can be in basic academic subjects such as reading, math, science, and social studies, or they can

be in areas such as creative writing, block construction, creative arts, perceptual skills, music, socio-dramatic play, and problem solving. The range of different exploratory learning tasks to choose from is largely determined by a student's interests, the teacher's skills, and material and space constraints (Wang, & Resnick, 1978).

The Self-Schedule System, the third component of the ALEM, provides the management and organizational supports required to permit a variety of teacher-prescribed and student-selected learning activities to occur simultaneously. It is an instructional-learning management system designed to help teachers and students function more proficiently in learning environments where student self-management is a requirement for successful program implementation. Students, for example, are taught to budget their time in order to complete all their teacher-prescribed learning tasks and a number of self-selected exploratory tasks within a given time period. They are also expected to take the responsibility to ask for teacher or peer assistance when needed (Wang, 1974).

Studies assessing the implementation of the ALEM in a variety of classroom settings indicated that a majority of its critical features tend to be in place as early as the second month of the school year. Furthermore, significant improvements from fall to spring were reported in a concurrent investigation of the degree of program implementation in the ALEM classrooms that were a part of the present study (Wang, Thompson, & Meece, Note 4).

For this study, students assigned to ALEM classrooms included first, second, and third graders. All students (handicapped, regular, and gifted) spent their mornings working on both the prescriptive and exploratory learning components of the ALEM program. Activities during

these morning sessions included one-on-one tutoring, small-group instruction, and individual activities. Group assignments were flexible, with students moving in and out of groups based on skills mastery and individual needs. During the afternoon, the school district's curricula in the following areas were implemented: science, social studies, language arts, library, music, art, and physical education. Staffing in the ALEM classrooms consisted of three regular teachers, one full-time and one part-time educational aide, and approximately 10 parent volunteers (15 students per adult).

The resource room program. Regular and gifted students not assigned to ALEM classrooms used the district's regular education program in all subject areas. Handicapped students, however, received instruction in the basic skills areas (i.e., reading, math, and perceptual skills) in the school's special education resource room each morning. All activities in these morning sessions were prescribed and scheduled on a daily basis by the teacher. All were highly structured. Activities were predominantly worked on independently by students either at their desks or at centers located around the room; however, one-on-one tutoring and small-group activities were also scheduled. The resource room was staffed by one full-time special education teacher and one aide (5.5 students per adult).

In the afternoon, handicapped students from the resource room program were mainstreamed into a regular classroom for instruction in the school district's curricula in science, social studies, language arts, library, music, art, and physical education. Thus, the curricula, enrollment patterns and staffing in the ALEM and non-ALEM mainstreaming classrooms during the afternoon were the same.

Description of the Measures

The Student Behavior Observation Schedule. A series of planned classroom observations were carried out in the study to obtain descriptive information on classroom processes. A systematic observation instrument, the Student Behavior Observation Schedule (SBOS), designed by Wang (1974), was used to obtain information on the nature and patterns of interactions between teachers and students, the settings in which learning activities occurred, the types of tasks on which students worked, and the manner in which classroom time was spent by students. The SBOS has been used in a number of investigations of classroom processes under the ALEM, and its inter-observer agreement has consistently been above 85% (Wang, 1974).

The SBOS data were collected in October and April of the 1980-81 school year for all students during the morning and afternoon sessions in the ALEM and non-ALEM classrooms. All observations were conducted by trained observers who were randomly assigned, in pairs, to the classrooms. Each observer was responsible for completing the SBOS on a specific list of students within each classroom. Students were randomly assigned to the observers. Each student was observed for a total of five one-minute intervals. For any given classroom, all of the observations were made in one day. An average inter-observer agreement of 95% was obtained.

The Perceived Competence Scale for Children. The Perceived Competence Scale, developed by Susan Harter (1982), was used in the study to assess children's sense of competence in several different domains. This instrument uses a structured rating scale format and is

designed to measure students' self-evaluations of their cognitive, social, and physical competencies as well as their feelings of general self-esteem. The students were interviewed individually, given descriptions of hypothetical children, and asked to choose those most like themselves. They also were asked to describe how similar they thought they were to the hypothetical children. Students' responses were rated on a scale from 1 to 4, with 4 being the most positive response (e.g., feeling pretty sure of oneself). The Perceived Competence Scale for Children was administered in the fall (October) and spring (May) of the 1980-81 school year to all first through third grade students participating in the study.

The Student Interview. A 20-minute structured interview was also administered individually in the fall and spring of 1980-81 to each student. Many of the questions included used an open-ended format and were designed to tap factors that might underlie children's responses to the items included in the Perceived Competence Scale. Several of the items were also designed to assess friendship patterns in the classroom and the reasons underlying children's friendship choices. An inter-rater agreement of 85% was obtained in categorizing and coding students' open-ended responses.

Results and Discussion

Classroom Processes

Comparison of classroom processes during the morning sessions in the ALEM and the non-ALEM classrooms. Data on classroom processes were first examined for differences in the ALEM and non-ALEM settings. The purpose of this first set of analysis is to simply provide a general description of the distinguishing characteristics of these two mainstreaming settings. A comparison of classroom processes involving handicapped and nonhandicapped children in the ALEM and non-ALEM classrooms is presented later.

Results from the analysis of classroom process data for ALEM and non-ALEM classrooms are reported in Table 2. Several interesting differences were observed between the two settings. Of the total time students were observed, ALEM students initiated interactions with their teachers more often than the non-ALEM students (41% vs. 6%). ALEM students also interacted with their teachers more often for instructional and less often for management purposes than did children in the non-ALEM classes. In addition, the ALEM students were observed to spend 70% and 21% of their time, respectively, on teacher-prescribed learning activities and on self-selected exploratory activities. In contrast, the non-ALEM students spent 85% of the time observed teacher-prescribed activities and only 11% of the time on self-selected activities.

It is interesting to note that the ALEM students spent less time in group settings (40%) than they did in individual settings (60%). In contrast, non-ALEM students spent more time in group settings (58%) than they did in individual settings (42%). The classroom process data also indicated that ALEM and non-ALEM students spent about the same amount of time on-task, and that the ALEM students exhibited slightly fewer distracted behaviors (2%) than did the non-ALEM students (5%).

Insert Table 2 about here

Comparison of classroom processes involving handicapped and nonhandicapped children in the ALEM program. Analyses were also done to compare the classroom processes of handicapped and nonhandicapped students in the ALEM classrooms. Of interest here was whether handicapped children appeared to be, on the basis of this behavioral assessment, as much a part of classroom activities in this integrated setting as nonhandicapped children. Table 3 presents fall and spring classroom process data for handicapped and nonhandicapped students.

Insert Table 3 about here

Looking first at the fall data, no significant differences are noted in the classroom behavior of handicapped and nonhandicapped students. To highlight some interesting findings, note that while teachers initiated more interactions with handicapped (96%) than with nonhandicapped students (77%), no differences were found in the purpose of those interactions. In addition, both handicapped and nonhandicapped children were observed to spend roughly the same amount of time in teacher-prescribed activities (61% and 60% respectively) and self-selected exploratory tasks (30% and 31%, respectively). Furthermore, while both groups spent equivalent amounts of time in group interactive activities, handicapped children spent less time in group parallel settings (2% versus 24%) and more time on individual tasks (80% versus 63%) than their nonhandicapped classmates. Note too that handicapped children were more on-task (96%) and less distracted (1%) when compared with nonhandicapped children (88%, on-task; 9%, distracted).

A slightly different pattern is evident in the spring classroom process data for handicapped children. For example, significant differences were found in the type of group settings in which students were observed to work. Handicapped children spent significantly more time in group parallel settings (66%) and less time in individual settings (15%) than did their nonhandicapped classmates (19% and 64%, respectively). Handicapped students were also engaged in more teacher assigned, as opposed to self-selected, activities in those settings than were nonhandicapped children. The decrease from fall to spring in the amount of time students spent in individual settings is particularly noteworthy. It suggests that teachers were either (a) prescribing more work in small groups for the handicapped children to compensate for

their poor academic skills, or (b) giving the handicapped students the extra time they needed to complete their assignments. In either case, this finding indicates that the ALEM teachers might have been providing adaptive instruction to meet the individual needs of these students.

Comparison of classroom processes observed during afternoon sessions for handicapped students in the ALEM and non-ALEM classrooms. Taking the analysis of classroom process data a step further, classroom process data for handicapped students in the ALEM and non-ALEM classrooms during the afternoon sessions were also compared. Two important points should be noted. First, during the afternoon, handicapped students who spent their mornings in the resource room were mainstreamed into non-ALEM classrooms. Second, during the afternoon, both ALEM and non-ALEM classrooms had the same staffing pattern and implemented the same curricula.

Insert Table 4 about here

As indicated in Table 4, differences in classroom processes were minimal. For example, in both programs interactions between handicapped students and teachers were primarily initiated by the teacher and the majority of activities for these students were teacher-directed. However, differences in the setting in which handicapped students worked are noteworthy. It is interesting that in the ALEM program handicapped students spent 85% of their time in group settings (19%, group interactive; 66%, group parallel), with only 15% of their time spent

working alone. In contrast, handicapped students in the non-ALEM program spent 64% of their time working individually, with only 36% of their time spent working in a group setting.

It appears, then, that there is some variability in the degree to which handicapped children in the ALEM and non-ALEM classrooms participated in group learning activities when the curricula program is supposedly the same for both groups. Additional information is needed to explain this finding. Perhaps the ALEM program helps handicapped children develop the academic and social skills they need to more fully participate in group learning activities. Alternatively, as a result of their involvement in the ALEM program, teachers may have developed methods for socially and instructionally integrating handicapped children, which they then use in implementing the school district's curricula in science and social studies.

In summary, the analyses of classroom process data have revealed some important differences between the classrooms where the ALEM was implemented as a full-time mainstreaming program and classrooms where a part-time, resource room program was used to provide basic skills instruction for handicapped students. For the purposes of this study, classroom process data should be viewed as general indicators of the academic and social life of the two mainstreaming settings. Compared with non-ALEM classrooms, there were more frequent opportunities for both handicapped and nonhandicapped children in the ALEM classrooms to initiate learning activities and interactions with teachers. As a whole, children in the ALEM classrooms spent slightly less of their time working in group settings than did the other children. Handicapped children, in particular, seemed to spend more of their time in

individual settings than did nonhandicapped children. Some variation in this pattern was evident between the two programs. While handicapped ALEM students spent more time than regular students in the morning working on individual tasks, this was not the case in the afternoon session. Here ALEM handicapped children spent a majority of their time in small-group settings, while non-ALEM handicapped students spent a majority of their time working alone. It is important to keep in mind that this was the only part of the day when non-ALEM handicapped children had contact with their nonhandicapped peers; the other portion of their day was spent in a segregated resource room. It appears, then, that there might have been more frequent opportunities for intergroup contact in the ALEM program than in the non-ALEM program.

This latter finding raises some interesting questions concerning the social integration of students in the two mainstreaming programs. For example, will the differential program treatments lead regular students to perceive handicapped children as slow and, therefore, less desirable as friends? This question will be addressed in our analysis of peer acceptance data.

Social Outcomes

Perceived competence. Data from the Perceived Competence Scale and the Student Interview were analyzed to assess children's judgments of their competence and feelings of self-esteem. Table 5 presents children's fall and spring scores on three of the subscales included in the Perceived Competence Scale: Cognitive Competence, Social Competence, and General Self-Esteem. Mean ratings of handicapped and

regular students are reported for the ALEM and non-ALEM classrooms. Recall that items used to form these composite scale scores are based on a four-point scale, with 4 indicating a more positive perception of one's competence.

Insert Table 5 about here

In general, although there was some variability across groups of students, children evaluated their competencies quite positively. There was only a slight increase in children's ratings from fall to spring. None of the changes reported here was large enough to be statistically significant. Several significant trends did emerge, however.

As is shown in Table 5, children in the ALEM classrooms generally rated their competencies higher than did children in the non-ALEM classrooms. Significant group differences on the Social Competence scale were found in both fall and spring (Fall: $F[1,102]=3.18$, $p<.01$; Spring: $F[1,102]=4.30$, $p<.01$.) This trend holds across subgroups of children within programs. Handicapped children in the ALEM rated their Cognitive Competence and General Self-Esteem higher than did the handicapped children in the traditional resource room program. On two of the scales, Social Competence and General Self-Esteem, the competency ratings of handicapped children in the ALEM group were higher than those of their regular peers. A similar pattern was not apparent in the non-ALEM group.

Data from the Student Interview were analyzed to substantiate the results from the Perceived Competence Scale and provide a broader view of the results. Only a few of the interview items related to children's self-perceptions of their peer popularity and interpersonal attractiveness were selected for analysis here. Similar to the Perceived Competence Scale, many of these items used a structured rating scale format which asked children to choose the child that was most like themselves. Responses from four of the items using this format are presented in Figure 1. With the exception of one item, a distinct pattern of differences was found between handicapped children in the two mainstreaming programs. A greater proportion of the ALEM than non-ALEM handicapped children thought others liked to play with them, thought they knew how to get others to play with them, and thought they would make a lot of friends that year. While they do lend support to the Perceived Competence Scale results, the Student Interview results should be merely regarded as additional descriptive information on students' social attitudes.

Insert Figure 1 about here

Overall, the set of findings on students' views of their competence and peer popularity presents a rather positive picture of the handicapped children placed in the ALEM classrooms. These children tended to have a higher sense of their competence than did children placed in the resource room program. These differences were also reflected in children's expectations for making friends. It is

interesting that ALEM handicapped children also rated their competencies higher than their nonhandicapped ALEM classmates. This latter finding raises an important question concerning the accuracy of the ALEM children's competency ratings. Because handicapped children are known to sometimes have inaccurate perceptions of their ability and peer popularity, other measures were included in our study to validate these findings. In the next set of analyses, we examine how well children's self-perceptions concur with the perceptions of their classmates.

Friendship patterns. Another factor that appears to play an important role in the social integration of handicapped children into mainstreaming settings is peer acceptance. Information on friendship patterns was collected and analyzed to examine the extent to which handicapped children in the two mainstreaming settings were liked and accepted by their respective classmates.

Two types of sociometric measures were used in this study. Children were asked during their fall interview session to name four children with whom they liked to work and to play (two children for each activity). They were also asked why they liked to work or play with a particular child. In the spring interview session, children were shown a class roster and asked to rate each child in their regular class according to a three-point numerical scale (a friend, sometimes a friend, not a friend). These measures were expected to give two rather different indices of social integration. Nomination measures provide information on children's closest and best friends, whereas rating scale measures provide information on children's general acceptability and likability by others (Asher & Taylor, 1981). To present a more complete picture of the relative social integration of handicapped children in

the study's two mainstreaming settings, both friendship choices and ratings were assessed.

As Tables 6 and 7 report, a fairly strong association was found between student type (handicapped or regular) and peer nominations for work and play activities. In general, although there was some variability across programs, fewer handicapped children were selected as play or work partners than would be expected by chance. Interestingly, a greater proportion of children from the non-ALEM group than from the ALEM group nominated children from outside their classroom as work and play partners.

Insert Tables 6 and 7 about here

In analyzing these data, we were particularly interested in the relative frequency of cross-handicapped nominations (e.g., a nonhandicapped child choosing a handicapped child) that occurred in the two programs. Some striking differences were noted for both work and play choices. As shown in Tables 6 and 7, cross-handicapped nominations were greater in the ALEM classrooms than in the non-ALEM classrooms. For example, in choosing a work mate, 15% of the regular students in the ALEM group nominated a handicapped student, whereas only 6% of the students in the other group did so. Similarly, a majority of the handicapped children in the ALEM classrooms chose a regular student for a work partner. In contrast, handicapped children in the non-ALEM classrooms were more likely to choose either another handicapped child

or someone from outside the classroom. An analysis of the reasons students gave for their work and play choices supports the contention that peer nominations are primarily made on the basis of mutual liking and friendship. In that regard, there is some preliminary evidence that the pattern of intergroup friendship was slightly stronger in the ALEM program than in the non-ALEM program.

A similar pattern emerged when we examined students' friendship ratings in the spring. An index of overall peer acceptance was computed for each student on the basis of classmates' ratings of that student as a friend, sometimes a friend, or not a friend. Ratings were then weighted such that a high peer acceptance score indicated that a high proportion of fellow class members rated the child as a friend. Analysis of variance procedures were employed to test for mean differences in peer acceptance ratings.

Mean acceptance scores are reported in Table 8. As can be seen here, acceptance ratings did vary across programs and across subgroups of children. Although the difference was not statistically significant, handicapped children in the ALEM classrooms tended to have slightly higher acceptance scores than did their regular classmates. This was not the case in the non-ALEM classrooms where findings indicated that handicapped children had much lower acceptance scores than did regular students. The comparison between handicapped children in the two programs is especially noteworthy. Handicapped children in the ALEM program received substantially higher overall peer acceptance ratings from their classmates than did the handicapped children in the non-ALEM program ($F[1,102]=2.84, p<.09$).

Insert Table 8 about here

In summary, both sociometric measures present a fairly consistent pattern of findings. On the basis of friendship choices and ratings, handicapped children in the ALEM program appeared to be more socially integrated into the mainstreaming setting than were their handicapped peers in the non-ALEM program. These findings are particularly interesting in light of the issue raised earlier concerning the accuracy of handicapped children's self-perceptions. At least in the social domain, the high sense of perceived social competence reported by ALEM handicapped students seems to reflect the relatively high degree of peer acceptance these children experienced in the regular classroom setting. Further analyses are needed, however, to test the causal relationship of these factors.

Conclusions

An important goal of this study was to examine the social outcomes of mainstreaming in the context of important program variables. More positive trends were found in the adaptive educational program. Handicapped children in this program had higher self-ratings of competence and received higher peer acceptance ratings than did handicapped children in the traditional resource room program. Variations in these important social outcomes could be explained by a number of the program differences identified in our analysis of

classroom process data.

One major difference between the two programs is the amount of time ALEM and non-ALEM handicapped students spent in the regular classroom setting. Children in the ALEM program were placed in the integrative setting on a full-time basis. The fact that handicapped students in the resource room program spent only part of their day in the mainstreaming setting suggests that ALEM students may have benefited from greater contact with nonhandicapped peers. Much of the research on the contact hypothesis has shown, however, that the possible social benefits of intergroup contact depend on classroom provisions for accommodating the special social and learning needs of handicapped children in the mainstreaming setting (Gottlieb & Leyser, 1981-b).

Perhaps the most striking difference between the two programs concerns the degree to which handicapped children are instructionally integrated into the mainstreaming setting. It is our hypothesis that this factor may have played an important role in the social integration of these children. Although there is a wide range of ability levels represented in ALEM classrooms, all children are expected to make regular progress through the curriculum under the same guidelines. The learning needs of handicapped and nonhandicapped children alike are individually diagnosed on an ongoing basis and appropriate learning activities are provided within the same classroom setting. Thus, an important objective of the ALEM is to reduce the perceived academic differences among students by adapting instruction to individual learning needs. It is hoped that students will be less likely then to develop perceptions of themselves as being "special." In keeping with this objective, no significant differences were found in the present

study between handicapped and nonhandicapped students' self-evaluations of their academic competence. In addition, other data not included in this study indicate that the academic gains of handicapped students in the ALEM program on the Stanford Achievement Test were as good as those of their regular classmates and non-ALEM handicapped students in the resource room program (Wang, Thompson, Meece, Note 4).

An unique feature of the ALEM program is its instructional-learning management system. The Self-Schedule System is specifically designed to foster the self-management skills students need to assume responsibility for carrying out a variety of different learning activities. This program feature helps to develop children's sense of personal control (Wang, 1981) and, as this study has indicated, to foster children's sense of competence and self-esteem. In addition, the Self-Schedule System has been shown to lead to a better use of teacher and student time. By giving students more responsibility for their learning, the teacher has more time to spend on instructional activities, rather than management matters. In particular, the data on classroom processes reported in this study indicate that teachers were able to give handicapped children the individualized help they needed in regular classroom settings. As the ALEM was implemented, there was a significant increase in the amount of time handicapped children spent in small groups or individual teacher-directed activities. It is important to point out that this differential treatment did not adversely affect handicapped children's perceptions of their academic competence or their social acceptance by others. Furthermore, contrasted with non-ALEM handicapped children who spent only part of their day in the regular classroom and a large proportion of that time in individual activities, the differential treatment ALEM students received would perhaps appear

less salient.

In conclusion, the adaptive educational program was found to have some unique programming features that could positively influence the social integration of children in mainstreaming settings. It is important to keep in mind, however, that the causal influence of these program variables has not been fully demonstrated. Also, these findings are primarily based on learning disabled children in one school setting. In order to examine if EMR or SED children also benefit from this program, replication studies are needed in other school settings with a more representative sample of mildly handicapped children. In addition, studies are needed that provide a more detailed analysis of intergroup behavior in these mainstreaming settings and that assess the long-term effects of the two types of programs.

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Table 1
Numbers of ALEM and Non-ALEM Students Participating in the Study

	ALEM Students						Non-ALEM Students					
Grade	Regular	LD	SED	EMR	Gifted	Total	Regular	LD	SED	EMR	Gifted	Total
1	15	4	0	0	0	19	21	7	0	0	0	28
2	9	4	1	0	1	15	15	4	0	0	0	19
3	16	2	1	0	4	23	15	1	0	0	4	20
Total	40	10	2	0	5	57	51	12	0	0	4	67

Table 2
Mean Percentages of Observed Frequencies of Categories of Classroom Process Variables for the ALEM and Non-ALEM Classrooms
Spring 1981

Comparison Variables	ALEM Classrooms $\bar{X}$%	ALEM Classrooms S.D.	Non-ALEM Classrooms $\bar{X}$%	Non-ALEM Classrooms S.D.	Probability from t-test
Interactions					
Student-Teacher Interactions					
Initiation					
Student	41	.13	6	.04	< .01
Teacher	59	.20	94	.27	N.S.
Purpose					
Instructional	94	.22	89	.27	N.S.
Management	6	.03	11	.04	N.S.
Purpose of Interactions with Peers					
Constructive	100	.24	100	.16	< .05
Disruptive	00	.00	00	.00	N.S.
Activity Types					
Prescriptive	70	.42	85	.33	<.01
Exploratory	21	.38	11	.30	N.S.
Other	9	.25	4	.14	N.S.
Setting					
Group Interactive	16	.33	40	.46	< .01
Group Parallel	24	.41	18	.37	N.S.
Individual	60	.46	42	.46	< .05
Initiation					
Assigned	28	.45	86	.35	< .01
Self-Initiated	72	.44	14	.33	< .01
Cannot be Determined	00	.00	00	.00	N.S.
Manner					
On-Task	89	.20	94	.15	N.S.
Waiting	9	.20	1	.06	< .01
Distracted	2	.05	5	.07	< .01

Table 3
Mean Percentages of Observed Frequencies of Categories of Classroom Process Variables for Handicapped and Nonhandicapped Children in ALEM Classrooms

	Fall 1980				Spring 1981			
	Handicapped		Nonhandicapped		Handicapped		Nonhandicapped	
Classroom Process Variables	$\bar{X}$% (N = 12)	S.D.	$\bar{X}$% (N = 63)	S.D.	$\bar{X}$% (N = 13)	S.D.	$\bar{X}$% (N = 78)	S.D.
Interactions								
Student-Teacher Interactions								
Initiation								
Student	4	.03	23	.10	00	.00	44	.13
Teacher	96	.31	77	.19	100	.22	56	.19
Purpose								
Instructional	96	.31	93	.20	100	.22	94	.22
Management	4	.03	7	.04	00	.00	6	.02
Purpose of Interactions with Peers								
Constructive	100	.24	100	.23	100	.07	100	.25
Disruptive	0	.00	0	.00	0	.00	0	.00
Activity Types								
Prescriptive	61	.47	60	.46	78	.34	68	.43
Exploratory	30	.44	31	.42	00	.00	.24	.39
Other	10	.24	9	.24	22	.34	8	.26
Settings								
Group Interactive	18	.33	13	.30	19	.33	17	.35
Group Parallel	2	.06	24	.40	66	.38	19	.38
Individual	80	.34	63	.44	15	.31	64	.45
Initiation								
Assigned	52	.48	36	.47	92	.19	23	.41
Self-Initiated	48	.48	64	.47	4	.14	77	.41
Cannot be determined	0	.00	0	.00	4	.14	0	.00
Manner								
On-Task	96	.07	88	.20	87	.20	89	.20
Waiting	3	.07	3	.09	1	.03	9	.20
Distracted	1	.03	9	.15	12	.18	2	.05

Table 4
Mean Percentages of Observed Frequencies of Classorom Process Variables for Handicapped Children in ALEM and Non-ALEM Classrooms
Afternoon Session, Spring 1981

Comparison Variables	ALEM Classrooms X% (N = 10)	ALEM Classrooms S.D. (N = 10)	Non-ALEM Classrooms X% (N = 10)	Non-ALEM Classrooms S.D. (N = 10)
Interactions				
Student-Teacher Interactions				
Initiation				
Student	0	.00	0	.00
Teacher	100	.22	100	.22
Purpose				
Instructional	100	.22	82	.28
Management	0	.00	18	.09
Purpose of Interactions with Peers				
Constructive	100	.07	100	.03
Disruptive	0	.00	0	.00
Activity Types				
Prescriptive	78	.34	86	.32
Exploratory	0	.00	9	.30
Other	22	.34	5	.15
Settings				
Group Interactive	19	.33	29	.42
Group Parallel	66	.38	7	.16
Individual	15	.31	64	.50
Initiation				
Assigned	92	.19	95	.15
Self-Initiated	4	.14	5	.15
Cannot be determined	4	.14	0	.00
Manner				
On-Task	87	.20	84	.22
Waiting	1	.03	6	.18
Distracted	12	.18	10	.16

Table 5
Mean Ratings on Perceived Competence Scale

	Fall 1980				Spring 1981			
	ALEM Classrooms				Non-ALEM Classrooms			
PCS Scale	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.
Cognitive Competence								
Regular Students	3.09	.48	2.93	.59	3.09	.69	2.97	.72
	(41)[a]		(51)		(41)		(51)	
Handicapped Students	3.13	.63	2.30	.80	2.71	1.13	2.50	1.26
	(12)		(12)		(12)		(12)	
Social Competence								
Regular Students	3.14	.61	3.05	.64	3.12	.80	3.09	.75
	(38)		(47)		(32)		(47)	
Handicapped Students	3.27	.45	2.49	.90	3.38	.41	2.40	1.31
	(10)		(11)		(10)		(11)	
General Self-esteem								
Regular Students	3.14	.56	2.98	.62	3.00	.77	3.10	.11
	(38)		(10)		(38)		(47)	
Handicapped Students	3.45	.43	2.51	.95	3.28	.32	2.64	1.32
	(47)		(11)		(10)		(11)	

[a] ( ) = number of children in each group.

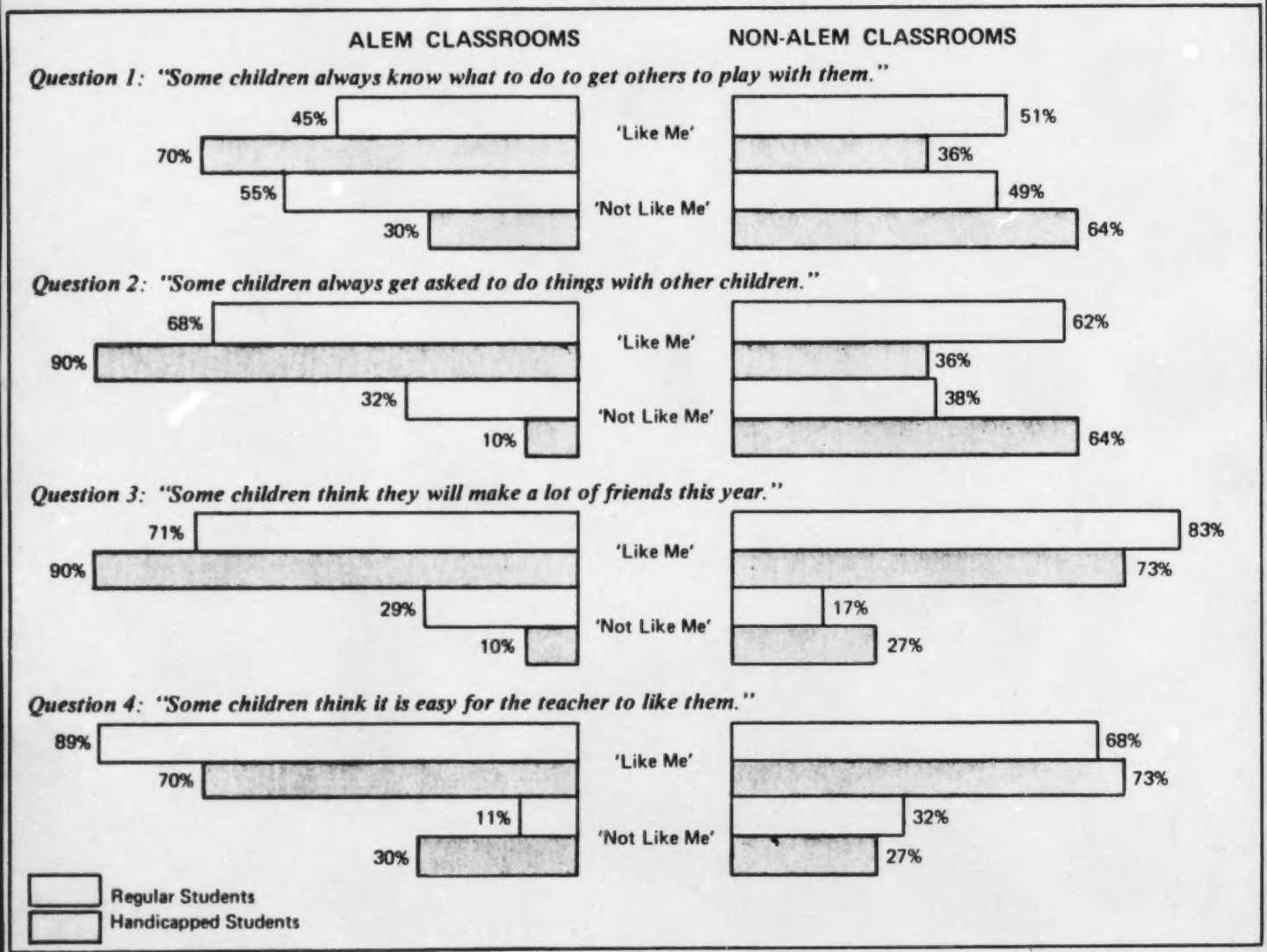

Figure 1. Proportion of children responding 'Like me' or 'Not like me' on interview questions assessing perceived peer popularity.

Table 6
Proportion of Chidlren Nominated by Peers for Work Partners

	ALEM Classrooms			Non-ALEM Classrooms		
	Regular	Handicapped	Other	Regular	Handicapped	Other
1st WORK CHOICE						
Regular Students	71%	15%	0%	76%	6%	18%
	(29)	(6)		(38)	(3)	(9)
Handicapped Students	63%	27%	0%	25%	17%	42%
	(7)	(3)		(3)	(2)	(5)
2nd WORK CHOICE						
Regular Students	76%	11%	2%	68%	4%	28%
	(29)	(4)	(1)	(34)	(2)	(14)
Handicapped Students	75%	16%	0%	9%	27%	64%
	(9)	(2)		(1)	(3)	(7)

Table 7
Proportion of Children Nominated by Peers for Play Partners

	ALEM Classrooms			Non-ALEM Classrooms		
	Regular	Handicapped	Other	Regular	Handicapped	Other
1st PLAY CHOICE						
Regular Students	80%	18%	0%	71%	6%	24%
	(32)	(7)		(36)	(3)	(12)
Handicapped Students	42%	50%	0%	25%	25%	33%
	(5)	(6)		(3)	(3)	(4)
2nd PLAY CHOICE						
Regular Students	65%	15%	0%	66%	8%	25%
	(26)	(6)		(34)	(4)	(13)
Handicapped Students	75%	18%	0%	18%	18%	36%
	(9)	(2)		(2)	(2)	(4)

Note. For both Tables 6 and 7 gifted students were not included in the analyses; therefore, in some cases, the sum of the proportions reported here was less than the total sample.

Table 8
Mean Peer Acceptance Scores
Spring 1981

	ALEM Classrooms		Non-ALEM Classrooms	
	$\bar{X}$	S.D.	$\bar{X}$	S.D.
Regular Students	38.47 (N = 38)	33.85	37.42 (N = 47)	36.24
Handicapped Students	42.65 (N = 10)	37.22	13.63 (N = 11)	23.44